Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-9 are pending in the application, with claims 1, 3 and 7 being the independent claims. Claims 1-3 and 7 have been amended. New claims 10 and 11 have been added. Also, the "Cross-Reference to Related Applications" portion of the specification has been amended to update information included therein. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 1, 3, 4, 7 and 8

The Examiner has rejected claims 1, 3, 4, 7 and 8 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,646,617 to Ohmoto *et al.* ("Ohmoto") in view of U.S. Patent No. 6,889,385 to Rakib *et al.* ("Rakib"). In view of the foregoing claim amendments and for the reasons set forth below, Applicants respectfully traverse.

Independent claim 1, as presently amended, recites a method for generating a data compression dictionary in a DOCSIS network. The method includes the steps of:

> i. identifying a plurality of frequently occurring data strings transmitted by a plurality of cable modems in the DOCSIS network;

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ii. assigning a token to represent each one of the plurality of frequently occurring data strings;

iii. entering each one of the plurality of frequently occurring data strings and each token assigned to represent each one of the plurality of frequently occurring data strings into a lookup table to produce a data compression dictionary; and

iv. transmitting the data compression dictionary to the plurality of cable modems in the DOCSIS network.

Ohmoto is directed to a method for compressing font data for storage in a printer or computer in which portions of the font data are compressed using a static dictionary. In contrast to claim 1, Ohmoto nowhere teaches or suggests identifying a plurality of frequently occurring data strings in *transmissions originating from a plurality of cable modems in a DOCSIS network* to build a data compression dictionary. Rather, in Ohmoto, only a single source—namely, the font data itself—is used to define the optimal static dictionary. Because the invention of claim 1 identifies a plurality of frequently occurring data strings in transmissions originating from a plurality of cable modems in the DOCSIS network, it is able to build a data compression dictionary that is "tuned" for that network. As set forth in the specification of the present application:

> At step 505, the ASCII strings to be entered into the data compression dictionary are identified. In an embodiment, the CMTS analyzes the data strings being exchanged between it and the cable modems in the HFC network 110. The CMTS then selects the most frequently occurring data strings for entry into the data compression dictionary. *In this way, the data compression dictionary is tuned for the particular HFC network 110 in which the CMTS and cable modems are located.*

See Specification, paragraph [0055] (emphasis added). Since Ohmoto's static dictionary is generated based solely on the font data that is to be compressed and stored, it does not teach or suggest this aspect of independent claim 1.

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In further accordance with claim 1, the data compression dictionary, once built, is transmitted to the plurality of cable modems in the DOCSIS network. A benefit of this step is that each cable modem can then use the data dictionary (which has been tuned for the DOCSIS network) for compression purposes, thereby resulting in a reduction of bandwidth utilization by each of the cable modems across the shared DOCSIS network. In contrast, in Ohmoto, the only disclosed use of the static dictionary is for storing the compressed font data in a printer or computer. Thus, Ohmoto nowhere teaches or suggests transmitting the data compression dictionary to the plurality of cable modems in the DOCSIS network as recited in claim 1.

The foregoing shortcomings of Ohmoto with respect to claim 1 are not in any way remedied by the teachings of Rakib. Rakib describes a system for providing broadband services over T-carrier systems that includes a "pull multiplexer cherrypicker" at the system's head end. Rakib generally states that compressed video data, such as MPEG II-compressed video data, can be sent from a gateway, such as a cable modem, at a customer premises to the head end, and also describes an implementation in which the system includes a DOCSIS network. However, Rakib nowhere teaches or suggests compressing data based on a data compression dictionary, let alone building such a dictionary based on a plurality of frequently occurring data strings identified in transmissions originating from a plurality of cable modems in the DOCSIS network or transmitting the dictionary to the plurality of cable modems as recited in claim 1.

As a result, the combination of Ohmoto, which teaches dictionary-based compression in which the dictionary is built based solely on a single data source (i.e., font data to be stored on a printer or computer), and Rakib, which merely teaches that

compressed video data such as MPEG-II data can be transmitted over a DOCSIS

network, does not result in the invention of claim 1, which identifies a plurality of

frequently occurring data strings in transmissions originating from a plurality of cable

modems in a DOCSIS network, builds a data compression dictionary therefrom that is

"tuned" for the DOCSIS network, and distributes the data compression dictionary to the

plurality of cable modems.

Since Ohmoto and Rakib, either alone or in combination, do not teach or suggest

each and every feature of independent claim 1, these references do not render claim 1

obvious. Accordingly, Applicants respectfully request that the rejection of claim 1 under

35 U.S.C. § 103(a) be reconsidered and withdrawn.

Independent claim 3, as presently amended, recites a method for transmitting

compressed data packets in a DOCSIS network. The method includes the steps of:

> i. receiving a plurality of data packets for transmission, wherein each of
> said data packets has a payload portion comprised of one or more data
> strings;
>
> ii. identifying which of said data packets has a payload portion that can
> be compressed;
>
> iii. for each of said data packets identified in said step (b), replacing each
> of said one or more data strings contained in said payload portion with a
> token from said data compression dictionary assigned to represent said
> one or more data strings, wherein said data compression dictionary is
> tuned to data transmitted by a plurality of cable modems on the DOCSIS
> network;
>
> iv. appending a compression indicator to each of said tokens within each
> of said data packets; and
>
> v. transmitting said data packets within a DOCSIS service identifier.

Among other features, independent claim 3 includes the feature of performing

data compression using a data compression dictionary that "is tuned to data transmitted

by a plurality of cable modems on the DOCSIS network." For reasons set forth above in

discussing claim 1, the combination of Ohmoto and Rakib does not teach or suggest such

a data compression dictionary. Accordingly, these references do not render claim 3

obvious. Claim 4 is also not rendered obvious by these references for the same reason as

claim 3 from which it depends and further in view of its own features. Accordingly,

Applicants respectfully request that the rejection of claims 3 and 4 under 35 U.S.C. §

103(a) be reconsidered and withdrawn.

Independent claim 7, as presently amended, recites a method for expanding a

PDU data string transmitted over a DOCSIS network. The method includes the steps of:

> i. receiving a plurality of data packets transmitted within a DOCSIS
> service identifier, wherein each of said data packets has a payload portion;
>
> ii. identifying each of said plurality of data packets having a compression
> indicator appended to one or more tokens within said payload portion; and
>
> iii. for each of said data packets identified in said step (b), replacing each
> of said one or more tokens contained within said payload portion with a
> data string assigned to represent said one or more tokens found in a data
> compression dictionary, wherein said data compression dictionary is
> tuned to data transmitted by a plurality of cable modems on the DOCSIS
> network.

Among other features, independent claim 7 includes the feature of performing

data decompression using a data compression dictionary that "is tuned to data transmitted

by a plurality of cable modems on the DOCSIS network." For reasons set forth above in

discussing claim 1, the combination of Ohmoto and Rakib does not teach or suggest such

a data compression dictionary. Accordingly, these references do not render claim 7

obvious. Claim 8 is also not rendered obvious by these references for the same reason as

claim 7 from which it depends and further in view of its own features. Accordingly,

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Applicants respectfully request that the rejection of claims 7 and 8 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claims 2 and 6

The Examiner has rejected claims 2 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Ohmoto and Rakib in view of U.S. Patent No. 5,293,379 to Carr ("Carr"). Carr is directed to a packet-based data compression method that is used for transmitting packets between two local area networks. The method taught in Carr reorders information in a data packet into regions and then applies a string compression algorithm such as LZW to selected regions of the packet header and to a user data portion of the packet.

Carr does not in any way rectify the shortcomings of Ohmoto and Rakib with respect to independent claim 1. Consequently, the combination of Ohmoto, Rakib and Carr does not render claim 2 obvious for the same reasons as independent claim 1 from which it depends and further in view of its own respective features. Likewise, Carr does not any way rectify the shortcomings of Ohmoto and Rakib with respect to independent claim 3. Consequently, the combination of Ohmoto, Rakib and Carr does not render claim 6 obvious for the same reasons as independent claim 3 from which it depends and further in view of its own respective features. In view of the foregoing, Applicants respectfully request that the rejection of claims 2 and 6 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claims 5 and 9

The Examiner has rejected claims 5 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Ohmoto and Rakib in view of U.S. Patent No. 5,737,733 to Eller.

Eller is directed to a method and system for searching a compressed document while a plurality of character strings stored in the compressed document are stored in a compressed code.

Eller does not in any way rectify the shortcomings of Ohmoto and Rakib with respect to independent claim 3. Consequently, the combination of Ohmoto, Rakib and Eller does not render claim 5 obvious for the same reasons as independent claim 3 from which it depends and further in view of its own respective features. Likewise, Eller does not any way rectify the shortcomings of Ohmoto and Rakib with respect to independent claim 7. Consequently, the combination of Ohmoto, Rakib and Carr does not render claim 9 obvious for the same reasons as independent claim 7 from which it depends and further in view of its own respective features. In view of the foregoing, Applicants respectfully request that the rejection of claims 5 and 9 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

New Claims

New dependent claims 10 and 11 have been added. Support for these new claims may be found, for example, at paragraph [0058] of the specification. Applicants respectfully submit that these new claims are patentable over the prior art of record for the same reasons as claim 1 from which they depend, and further in view of their own respective features.
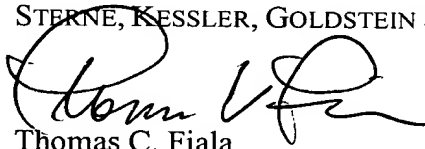
Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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